

WHAT IS CLAIMED IS:

1. A resist development processor comprising:
a development processing chamber for storing a
resist substrate having an exposed resist on the
5 substrate and for developing the exposed resist by
means of a development solvent consisting of a
supercritical fluid; and

a supercritical fluid container for storing a
supercritical fluid, said supercritical fluid
10 container being connected to said development
processing chamber through a valve.

2. A resist development processor comprising:
a high pressure gas container for storing a high
pressure gas of said development solvent, said high
15 pressure gas container being connected to said
development processing chamber through a valve; and

a liquid container for storing said development
solvent, said liquid container being connected through
a valve.

20 3. The resist development processor according to
Claim 2 characterized in that said high pressure gas
container is provided with a back pressure regulator
for ensuring that said development solvent in a
gaseous state filled into said container is changed
25 into a gas by opening of said valve, without allowing

said supercritical fluid in said development processing chamber to be liquefied.

4. The resist development processor according to Claim 1 characterized in that said development processing chamber is provided with a temperature regulator for ensuring that a high pressure gas in said development processing chamber is discharged, with the temperature of gas in said development processing chamber maintained above the temperature of critical point, thereby allowing the gas to be discharged without being liquefied.

5. The resist development processor according to Claim 1 characterized by comprising resist substrate holding means that prevents said development solvent in liquid state from coming into contact with said resist substrate, when said liquid development solvent is introduced into said development processing chamber.

6. The resist development processor according to Claim 2 characterized in that said development processing chamber is connected through a high pressure force supply pump, in contact with said development solvent in liquid state of said liquid container.

7. The resist development processor according to Claim 1 characterized in that said supercritical fluid

container is connected through a valve and a high pressure force supply pump, in contact with said liquid of the liquid container for storing said liquid development solvent.

5 8. The resist development processor according to Claim 2 characterized in that said high pressure container is connected through a valve, in contact with said gas of the liquid container for storing said liquid and gaseous development solvent.

10 9. The resist development processor according to Claim 1 further comprising a temperature regulator for regulating the difference in the temperature of said development solvent from each vessel, supplied to said development processing chamber.

15 10. A resist development processing method characterized in that the development solvent consisting of supercritical fluid is introduced into a development processing chamber for storing a resist substrate having an exposed resist on the substrate,
20 whereby development is carried out.

 11. A resist development processing method characterized by comprising the steps of:

 introducing the development solvent consisting of supercritical fluid into a development processing
25 chamber for storing a resist substrate having an

exposed resist on the substrate;

introducing the liquid of the same material as that of said fluid into said development processing chamber; and

5 removing said supercritical fluid from said development processing chamber.

12. A resist development processing method wherein development is performed by introduction of the development solvent consisting of supercritical fluid
10 into a development processing chamber for storing a resist substrate having an exposed resist on the substrate, said resist development processing method characterized by comprising the steps of:

filling the development processing chamber with
15 the development solvent without contacting the resist substrate;

introducing said supercritical fluid into said development processing chamber;

pumping said development solvent in a liquid state
20 into said development processing chamber; and

removing said supercritical fluid with the temperature of gas in said development processing chamber maintained above the temperature of critical point, without allowing said supercritical fluid to be
25 liquefied.

13. A resist development processing method comprising the steps of:

introducing liquid carbon dioxide into a development processing chamber for storing a resist substrate having an exposed resist and holding the
5 resist substrate to said gaseous carbon dioxide;

introducing supercritical carbon dioxide into said development processing chamber and maintaining it at a specified pressure, thereby allowing said development
10 to be carried out;

pumping liquid carbon dioxide into said development processing chamber and mixing it with said supercritical carbon dioxide;

discharging the supercritical carbon dioxide of said development processing chamber into a high
15 pressure carbon dioxide container filled with high pressure gaseous carbon dioxide, and converting the supercritical carbon dioxide filling said development processing chamber into gaseous form, thereby stopping
20 said process of development; and

removing carbon dioxide of said development in the gaseous state.

14. The resist development processing method according to any one of Claims 10 through 13
25 characterized in that changes in the temperature of

said resist substrate in said development processing chamber do not exceed 10 degrees Celsius.

15. A surface processor comprising:

5 a processing chamber for storing an object to be processed;

a supercritical fluid container for storing a supercritical fluid, said supercritical fluid container being connected to said processing chamber through a valve;

10 a high pressure gas container for storing the high pressure gas of the same material as that of said fluid, said high pressure gas container being connected to said processing chamber through a valve; and

15 a liquid container for storing a liquid of the same material as that of said fluid, said liquid container being connected through a valve.

16. A surface processing method comprising the steps of:

20 introducing the supercritical fluid filled in the supercritical fluid container, into the processing chamber for storing an object to be processed;

introducing into the said processing chamber the liquid of the same material as that of said fluid
25 filled in the liquid container; and

discharging the supercritical fluid of said processing chamber into the high pressure gas container filled with high pressure gas.